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THE DEPTH OF THE PLANE

"God was pleased with what he saw,
and He separated the light from
the darkness".

Bible


A piece of imitative art is a system created by the artist to convey a particular "message". In the process of realization of the system on plane the artist inevitably has to deal with light, colour and like and space structures which require a specific arrangement.

This assumption will allow us to consider the arrangement of light and tone structures into a t o n i c system which we believe to be the basic one. Special attention to this system can be explained by the fact that receiving visual information our eyes first of all react to the change in the light intensity. Indeed, our estimation of light gradation turns out to be easier than that of the gradation in size or colour. On the retina light structures are perceived in which figures of different light intensity form particular configurations. To a certain extent this is true about tone and light structures where tone and light figures are combined in a certain order which make common plane suitable for painting.

Our objective is to find out how the artist arranges the order and what is its function. We shall not consider the peculiarities of the artist's personality or the extent of consciousness in the process of the arrangement.

It is assumed that the basic unit of our everyday vision is the object fixed in the consciousness by a multitude of comprehended functional properties. A structure as a combination of sensuously perceived qualities can be represented as an independent object reflected as a number of properties in the consciousness. For instance, such structural properties of our clothes as color, ^{voice} or style, can be perceived apart from the form and the notion of this thing in general.

We can distinct^{quish} qualities of the perceived structures through the categories of form, style, colour, brightness, movement, space. For the artist they are distinguished as specific



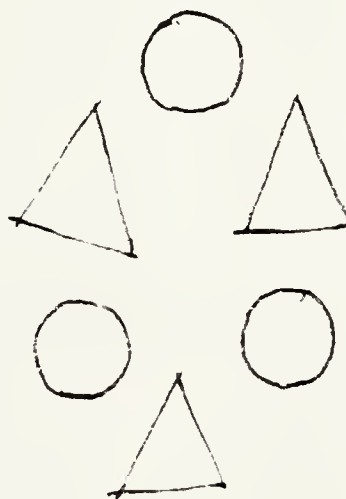
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objects of his activity. Identified and located in the space, these perceptive qualities are fixed and materialized on the plane.

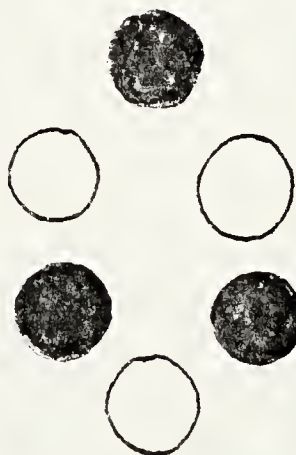
Our system of vision permits to concentrate attention on certain properties of an object. The possibility of distinguishing particular qualities allows us to compare the observed objects. In this process there exists a principle of grouping, according to which "the more similar the models are, the more homogeneous their group is perceived". The principle of grouping is illustrated on the picture 1. Circles and triangles when perceived, form two groups, each of them forming a figure.

Picture 1



Picture 2 is similar to picture 1 and illustrates the principle of grouping on the basis of light and tone. Here figures are grouped according to their light intensity.

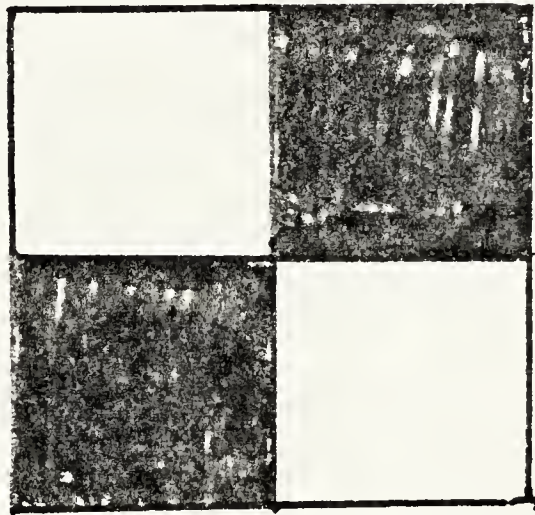
Picture 2



In the both cases we alternately consider groups of different objects. This alternate perception is caused by the ambiguity of the information we receive in observation. R. Gregory calls the sensuously perceived objects "object-hypotheses" and says that "each of the hypotheses is perceived but no one of them becomes final because none is the best".

Comparing the two pictures, let us note the complicated interrelations of the grouped light and tone structures which result from the active participation of the light qualities of the background. As different from the direct opposition of groups of circles and triangles, the dark and light circles are opposed in a more complicated way, through the tone of background. These groups being differently correlated to the background, they turn out to be in an unequal position. A more persuasive illustration of tonic variation is given in picture 3.

Picture 3



It is perfectly clear that in the general sense picture 3 depicts two dark and two light squares, arranged chequerwise. But it is not quite so, whenever we attempt to obtain a more complete description of the situation.

Unlike pictures 1 and 2, picture 3 combines structures in such a way that they do not have a common background, the background for each of them being a structure of the ^aether tone. While in the two preceding examples we alternately perceived different structures, though equal due to the common background, picture 3 presents a vicious circle of alternate perception of two situations excluding each other. This hinders successive comprehension of the depicted event, and thus picture 3 does not present an understandable message. In depictive constructions the cases of such contradictory descriptions are quite frequent.

As our constructions, including our messages, have to be completed, we need to choose out of two possible variants one to be developed. Accordingly the artist out of the variety of the observed "events" selects one. It is embodied in a construction which is the artist's account of the event. Whenever the artist observes or constructs a light structure he sees it as an event, all parts of the structure being objects of observation. Therefore one may assert that the artist begins to consider a pheno-

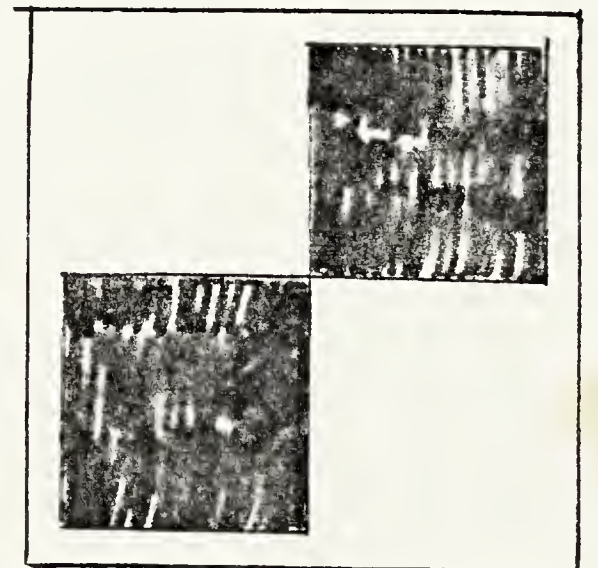
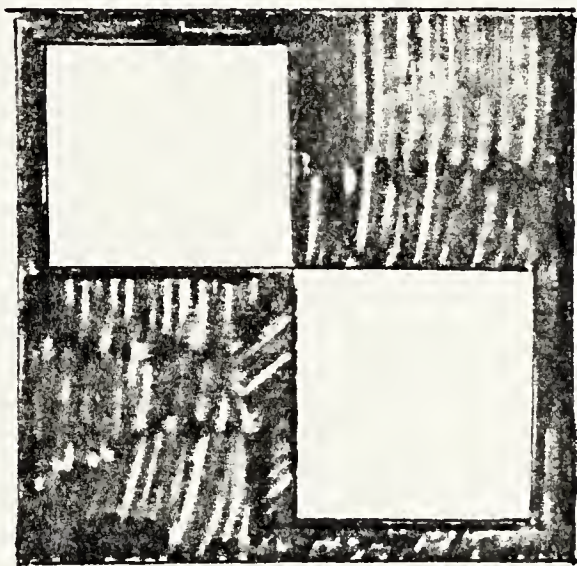
menon when he separates the object from the rest part of the visible world, this separation being to a certain extent arbitrary.

Thus the light structure in the process of observation is a system which does not contain any inner contradictions. This fact enables us to immortalize the "light event" on a limited depictive plane.

To demonstrate that there exists a variety of objects in the same phenomenon let us once more look at Picture 3 which is "a light phenomenon" existing in two perceptive hypotheses. Considering the two dark squares as an object of observation (Picture 4) and associating the two light squares with the background, we obtain unambiguous information about the chosen event. Picture 5 provides information about another event in which the object of observation is the two light squares. Each of these messages (Pictures 4 and 5) describes an event in unambiguous qualitative.

Picture 4

Picture 5



The both pictures are but complementing each other aspects of one and the same phenomenon. Indeed, the stability of our models is the cause of the limited possibility to reproduce a phenomenon as a whole due to conditions of observation that exclude one another. But as a result, we are able to localize the components of a phenomenon in space and time and thus to describe them.

One may conclude that though the message is possible only on the account of a completed event, due to formal qualities, they nevertheless permit to express the dynamic side of our perception. The figure and the background are in opposition by light intensity and their function. This opposition in the sys-



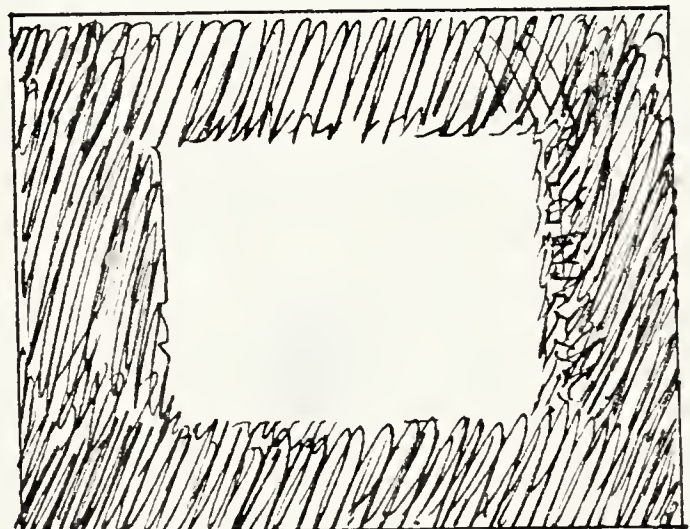
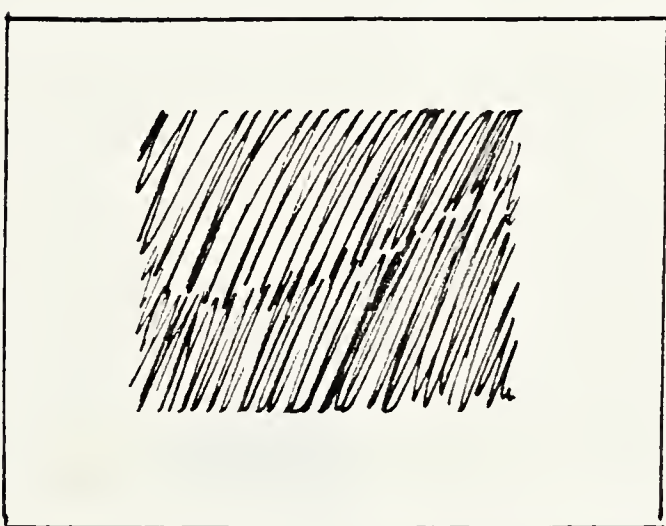
tem "figure - background" is defined by the gestalt psychologists as the fundamental one. Typical examples of such a system are Pictures 4 and 5. What is essential is that the artist deals with a plane of two dimensions which limits the sphere of his activity. The background limited in space loses its property of an open form. The background obtains properties of the figure and in this respect becomes similar to the figure. Therefore, in a system the figure and the background passess equal qualities.

From the functional point of view the background as a tonic entity can be regarded as a container of the tonic form of the figure, while the tone of the background is limited by the figure and by the limits of the plane.

Such a disposition is possible in two variants: a dark background and a light figure (Picture 6) or, vice versa, a light background and a dark figure (Picture 7).

Picture 6

Picture 7



The presented structures convey elementary, obvious information and can be considered the primary ones. An example of such a structure is the painting "Black Square" by Malevich.

The light intensity that we perceive fluctuates from white to black and has a multitude of gradations. How should we define, or rather measure every hue used on the plane?

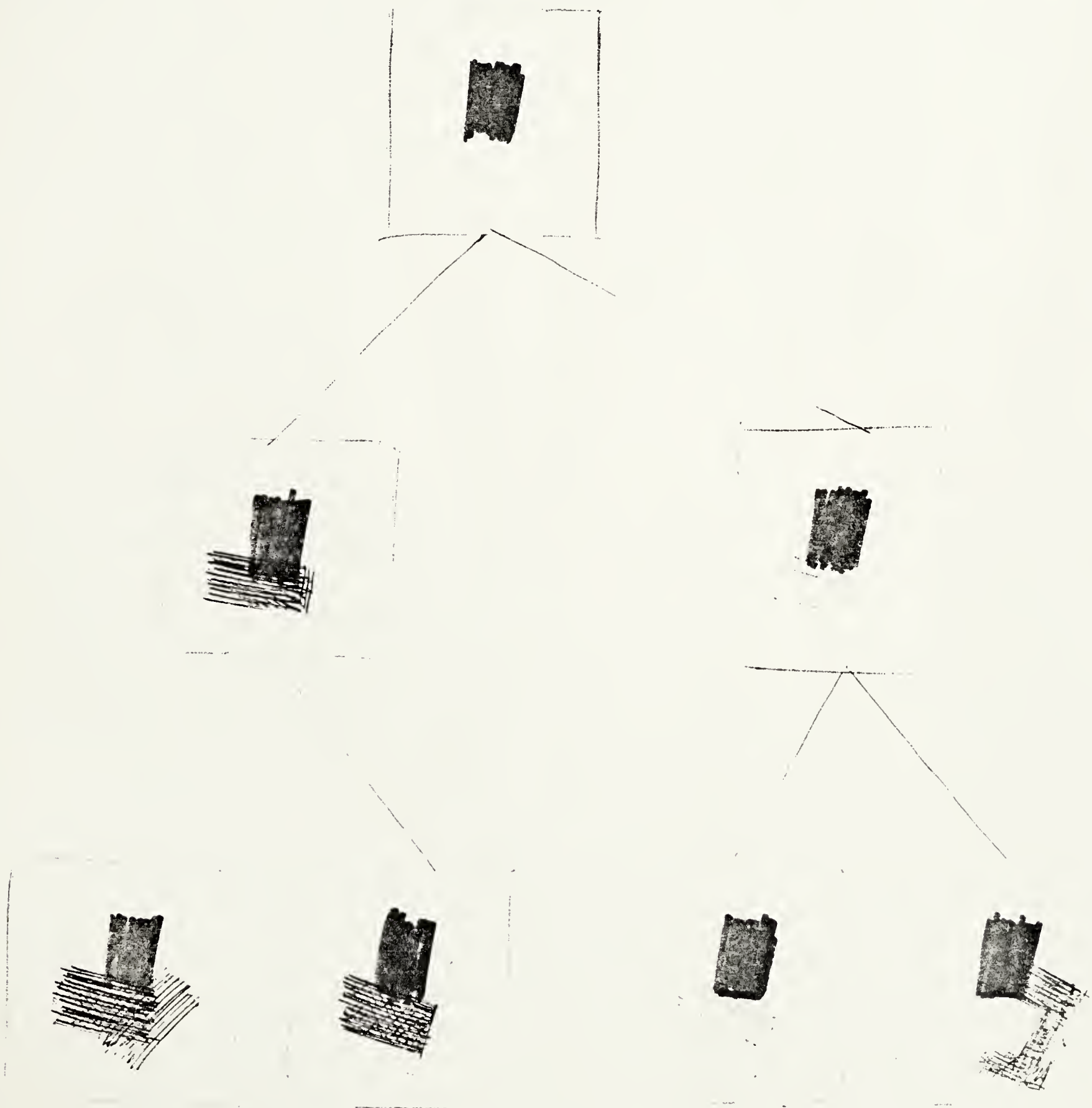
The simplified models of the tonic system (Picture 6, 7) based on the opposition the two key tones, are convenient to group all new tone forms according to their belonging either to the figure or to the background. Consequently light group are formed: light and dark. The tones of the background and the figure are the extreme points of estimation of every hue added

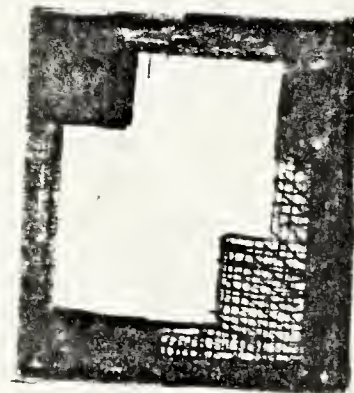
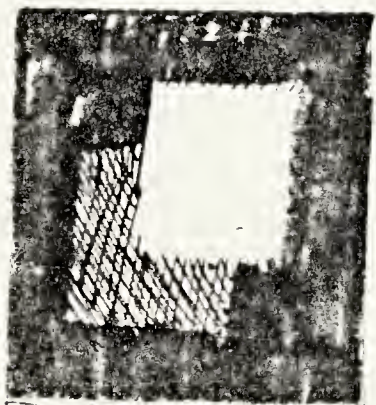
to the picture. Filling the plane with tones, we keep an eye on their correlation and determine their light quantities through comparison with each of the two initial tones.

Because of the equal possibility to use a light or a dark tone, every time we have two probable tonic structures. Let us imagine this doubling of combinations in a scheme: in a system of light background (Picture 8) and in a system of dark background (Picture 9).

Picture 8

Picture 9





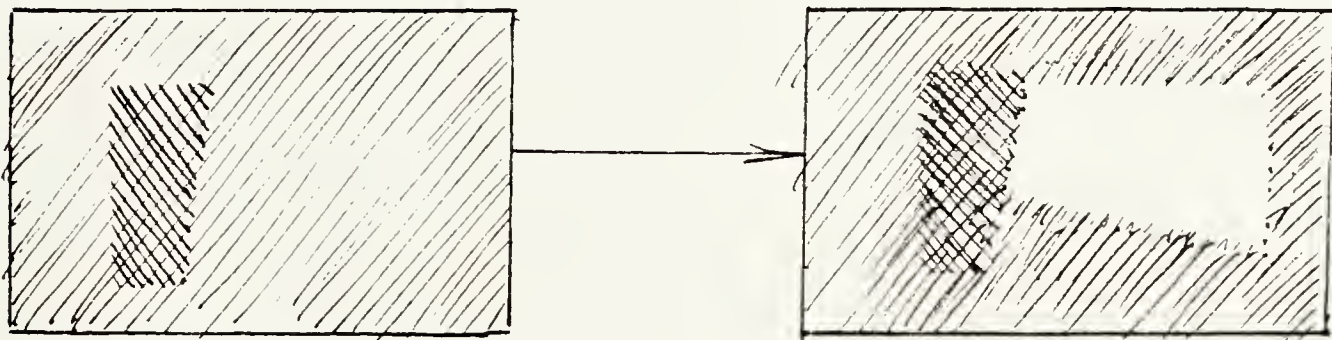
In this manner all tones of the group are interconnected. Every element is fixed in the plane. Thus the artist mandates "to give every part of the plane a meaning which does not exclude the general meaning".

No matter how tones are disposed on the plane they should not lose their group links. As soon as a tonic element is out of one or the other light group, it loses the information it carries in the system and becomes superfluous. This uninformative element when perceived destroys the whole system.

The existence of links between tonic elements makes them informative units which enable us to read the tonic message. What is more, every new combination of tonic elements conveys its own unique message.

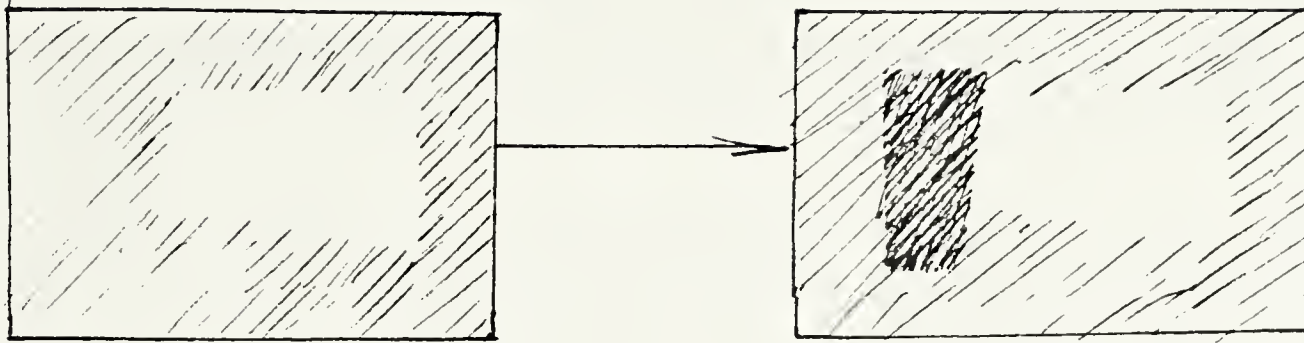
Tonic construction of the plane can be considered to be a kind of compositional construction on the level of light figure.

Interdependence of tonic structures can be traced on a higher level when to an already established system a new tone is added which alters not only the role of adjacent tones, but also the nature of the whole system. Picture 10 shows transformation of a light background system into a dark background system.



Picture 10

The emergence of a considerably lighter tone assimilates the previous two. Thus the dark tone of the former figure is absorbed by the background while the new light tone becomes the figure of the new system. Similar is the transformation of a dark background system into a light background system (Picture 11)



Picture 11

The plane, absorbing information, becomes more complicated, and therefore a tonic system can be regarded as a group of subsystems. In the basic tonic system such subsystems first of all are the group of background and the group of figure. Besides, any tone is a subsystem of a certain level. Thus not only properties and functions of the whole system but those of any subsystem are liable to transformation.

The possibility of transformation of groups in a system points to the dynamic character of compositional construction, wherein every existing structure tends from one alternative to another, from the past to the future. Thus we are able to perceive space and time qualities of light information, materialized in the tonic system. A similar idea can be seen in what Kandinsky said about Rembrand "Rembrandt struck me. The main division into the dark and the light, the absorption of second-rate tones by these large parts, has revealed the superhuman force of colour and strengthening of this force by the principle of contrast. His paintings are continuous. This division imparts painting the allegedly inaccessible element - Time".

Kandinsky calls our attention to the plastic construction of the image. He recognizes its right to independent objective existence in time and space.

The opposition of groups and their fruitful interaction generate energy which feeds the plane with the force of light. Malevich said about it: "Intuition found in things the energy of dissonance, produced by the confrontation of contrary forms. What is more, these forms are disposed so as to produce the utmost dissonance by their unexpected meeting". Most information of the plane is conveyed in the points of dissonance. Dissonance Strengthens signals. It does not break harmony but proves it. "The utmost dissonance" is fixed in the plane. In the tonic system it is placed at the border of two tonic figures belonging to different tonic groups. To determine the point of dissonance let

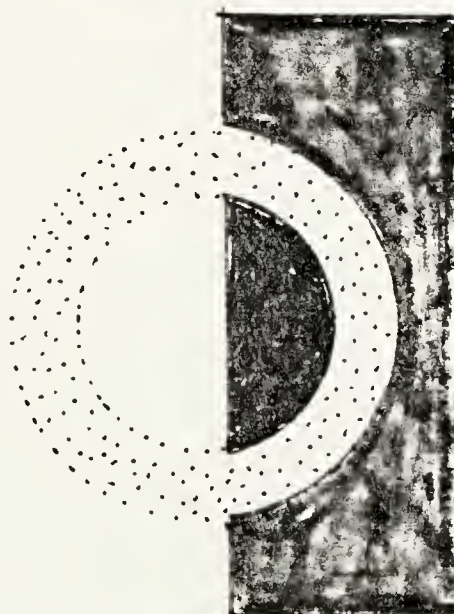
us go back to the primary element of the tonic system - a figure. It has its own structure which is based on the laws of our visual perception, as well as on the laws of the isolated system of the plane.

Kandinsky defines the supreme degree of the expressiveness in art as the combination of two graphic forms: free plane and line. This can be translated in the following way: "free plane" is the field of a particular light force, while "line" is a contour limiting this field and thus making a figure out of it.

Matisse points out that the contour of a figure should be paid special attention by the artist. According to Matisse, the development of the field is the individual concern of the author.

The ideas of artists are confirmed by the work of the mechanism of our perception. R.Gregory said: "When we look at a blank sheet of paper, its edges will be moving in the limits of the retina and thus the stimulation will be preserved. But what will happen to the centre of the picture? As a field of a certain brightness will be replaced by another field of the same brightness, the movement of eyes will not lead to any charge in the stimulation. Still the centre of the sheet will be perceived. Thus contours play an important role in perception, while the surface of the same tone is not very significant, our system of vision filling the space within the borders of the image. Thus a contour line is not only the border of a tonic object, but is also the point where two tonic objects of different light force border. This second function of the contour can be traced in the phenomenon of the "simultaneous contrast" (Pic. 12).

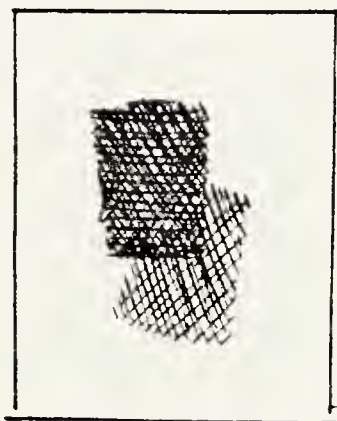
Picture 12



The perception of the ring in the picture is different in its different parts. The part with a dark background seems to be lighter than the other part with a light background. The combinations of different tones create the phenomenon of division of one and the same tone into new shades. As the retina reacts not to the force of light but rather to the change in this force, the fact that one and the same tone can be perceived in different ways, can be explained by the influence of contrasts different in their extent. The contour in its second function influences the characteristics of the adjacent tones, changing their quality. Thus the contrast of tones along the contour line is an instrument to extend the possibilities of the limited variety of tones and to better reflect the colours of the real world. The contrast makes the light and force characteristics of tones more precise, because it reveals individual qualities of each of them. The contour stresses the tones and measures the degree of their force. As contrasts themselves can be measured, they can be subdivided into two forms of existence: contrast proper and shade. Contrast is the initial confrontation of two tones. The addition of a third tone creates shade interrelation of tones, that is shade as such can be perceived only in the presence of contrast. Within each of the groups in the system "figure-background" tones interact in the form of shade. Contrast and shade are combined in six possible ways: contrast of light figure and dark background (Pic. 6); contrast of dark figure and light background (Pic. 7); shade within dark figure and shade within light figure (Pic. 13); shade within light background and shade within dark background (Pic. 14).

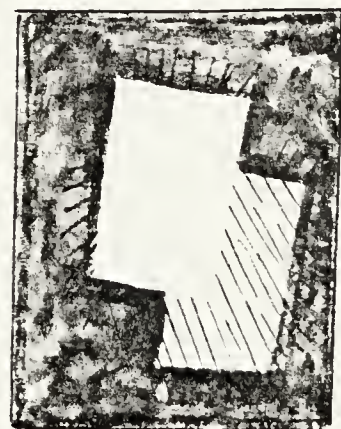
Shade within the figure;

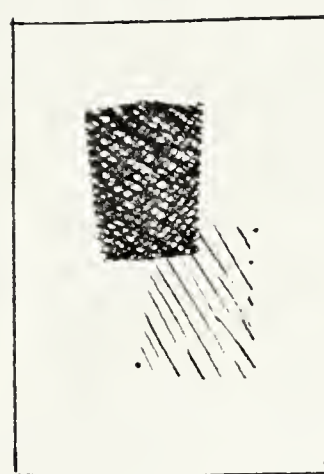
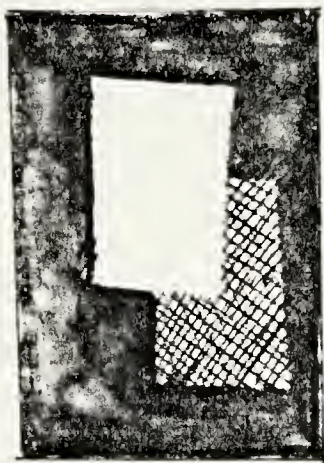
Picture 13



Shade within the background:

Picture 14





All other combinations, formed by the artist, are just variants of these patterns. The number of possible light and tone structures is practically unlimited. The distinction of contract and shade, as forms of connection of primary elements and tonic groups, helps to convey the proper contents in the strict system of the plane.

Thus on the level of the system the background and the figure are connected due to contrast. On the level of subsystems - within the figure and the background it is in shade that tones differ. The critical point of all these connections is the point of dissonance. Being the most important part of the system it kind of underlines the essence of the labyrinth of tones. We look from contours to the point of dissonance, that is the most active contrast, then our eyes look from shade to shade and then are invariably once again attracted by the dissonance. We fail to tear the net, put by the artist, which governs the succession in which we perceive the information. Dissonance is a signal standing out of all shades and contrasts of the plane, and at the same time an impetus for the system of nerve regulation. Dissonance is not always situated at the border of polar tones because it is flexible in its very nature and subject to the will of the artist. The direction of the impetus should not be understood from the geometrical point of view of the Renaissance structures: closer-further. The fact that the whole system is conditional does not permit to expect too much from similarity of the depicted space and the real space. The space of the plane is, from our point of view, created by tonic differences on the two ^{-dimensional} measure plane and perceived through their dynamic pulsation in time.

As in visual model information is a signal, formed by elements of different kinds, the artist seeks to strengthen the signal by adding to the asymmetry of the system. In this aspect

the white canvas is the absence of any order - chaos. Its information equals zero. While on this field "the seed" of new elements begins to grow, the chaos is replaced by a system.

The increasing number of elements increases the quantity of information. But as in an isolated system the entropy tends to increase by itself, the information, increasing its entropy, tends to diminish.

Thus, the artist works in two directions. On one hand, he develops the plane, on the other hand, he stabilizes the system, imparts unambiguity to its structural characteristics.

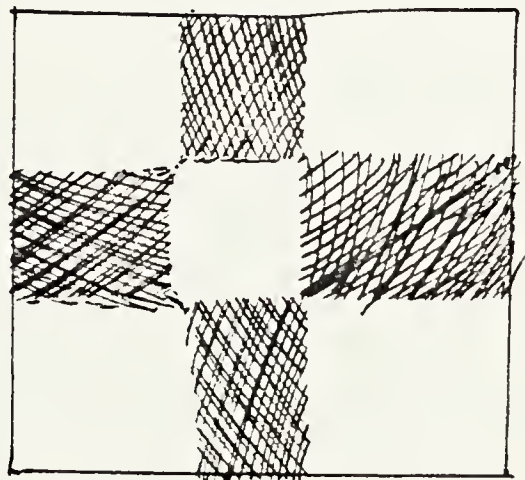
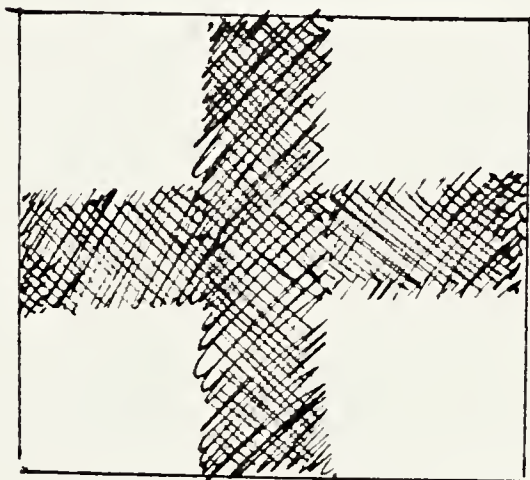
The further a structure goes from the "ideal" variant, the more difficult it becomes to keep it within limits of an isolated system. The tendency to degradation of order and at the same time its consolidation in more complicated constructions is shown in the following pictures. Picture 15 is a common case of breaking the homogeneous tone of the background along the edge of the plane.

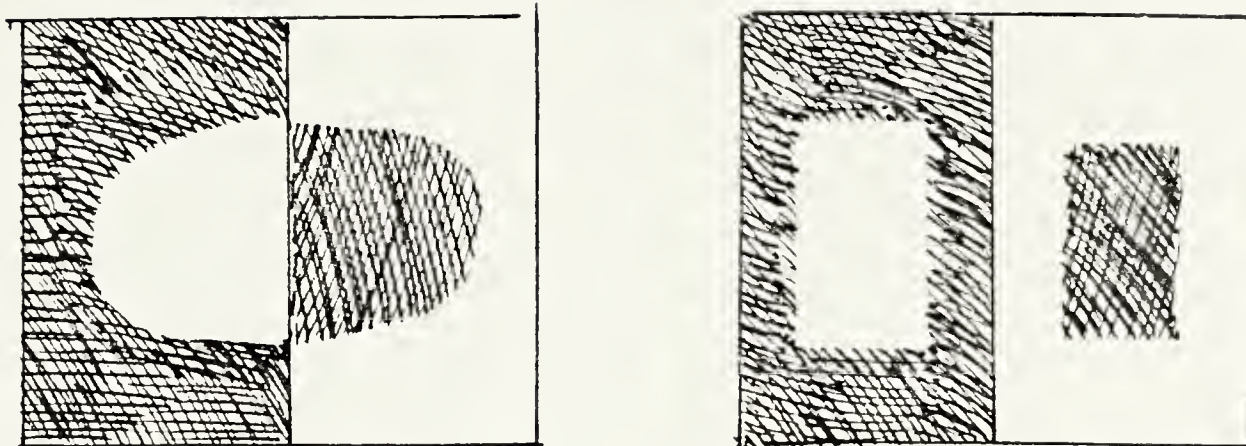
Picture 15

The figure not only extends beyond the limits of the plane, but also spreads the tone of the background out of its own borders. To preserve the system it is necessary that the partly perceived object have a logically completed form. Only then, remaining to a certain degree independent it will become a part of "the whole". It is worth noting that in this case according to the principle of grouping the scattered parts of background group together due to their tone similarity.

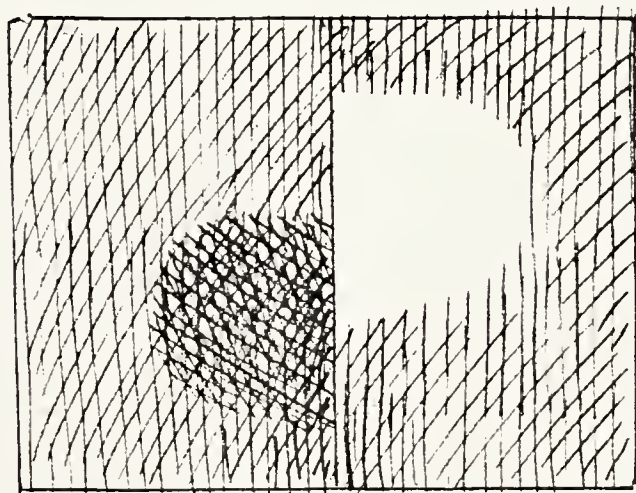
Picture 15 A

Tonic correspondence is strengthened on Picture 15 A, where the light part inside the figure attracts parts of background and keeps them together within the limits of the plane.



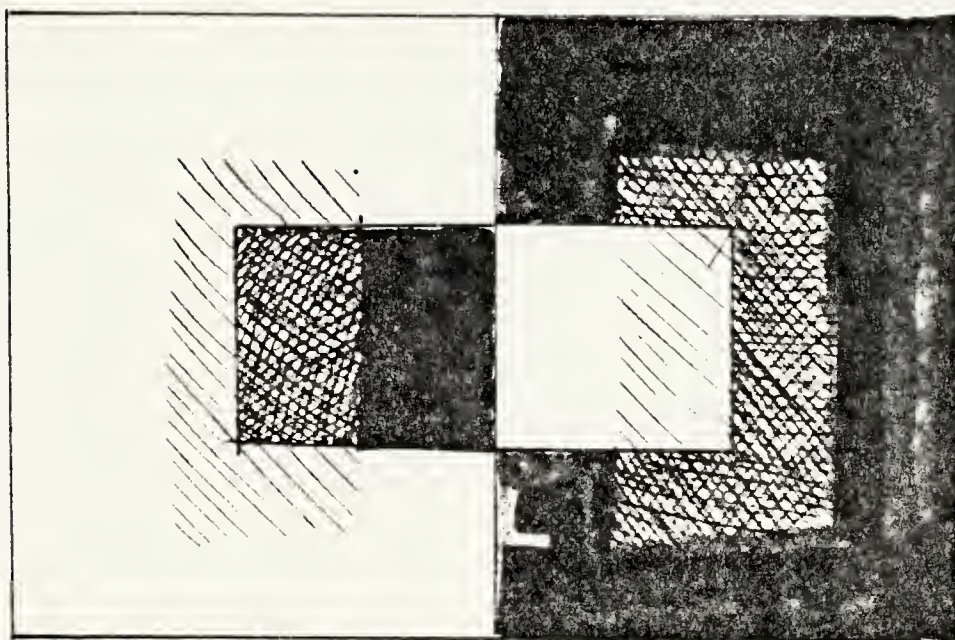


On Pictures 16 and 16 A we see double constructions, where the figure of one part and the background of the other are of one and the same tone. In this case there is a probability of simultaneous variants, like on Picture 3. But as distinct from the object perceived as an "object-hypothesis", the parts on Pictures 16 and 16 A are only independent to an extent necessary to form "the whole". Here a successive consideration of situations is possible, where they would not exclude each other, but to the contrary, they would coexist due to tonic interaction of the figure of one part and the background of the other.



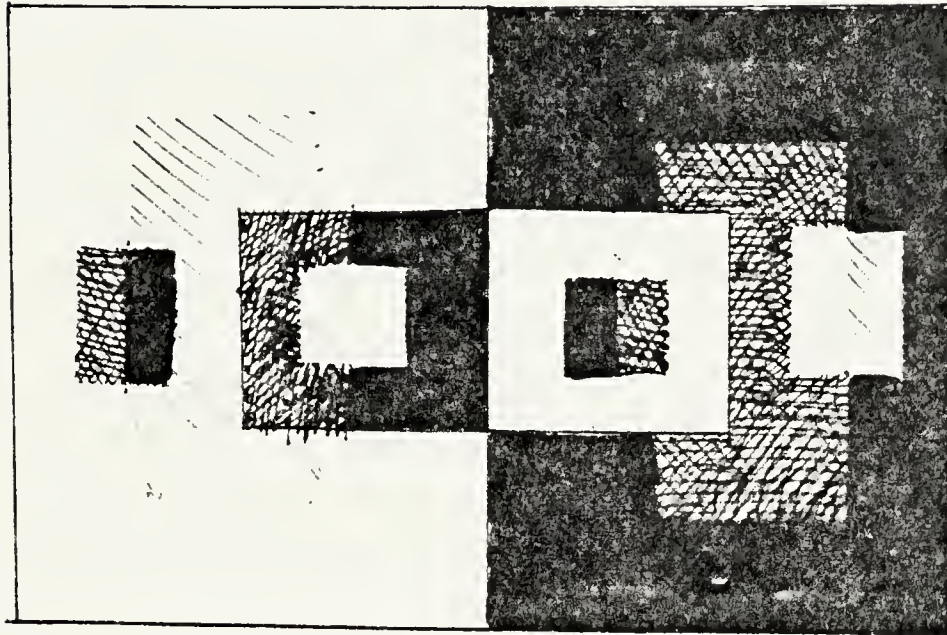
Picture 17

On Picture 17 a subtle difference between contrast and shade tends to create indefinite relations between tones. This situation is similar to those on Pictures 10 & 11. The light and the dark tones of the background equally claim being the figure. The background starts to lose the definiteness of its light and tone characteristics. To convey the information it is possible to preserve the system by attaching the quality of the figure to one of the two tones contained within a third tone.



Picture 18

On Picture 18 the initial four tones are combined into six possible combinations of contrast and shade. The phenomenon of the simultaneous contrast increases the variety of light tones to eight. Without a direct contact, tones interact at a distance. To show the further multiplication of tones on the plane, on Picture 18 A we see that the same four tones are multiplied to sixteen



Picture 18 A

The increasing probability of coincidence of tonic groups can stop the stimulation of perception.

If tonic interrelations are not clarified, it ruins the importance of the space of the plane. The eyes and the brain lose connections and seek help in everyday experience. Then we do not see the inner space nature of the plane and perceive the canvas or the paper in the categories of their "real" space.

The elements without coordination stick out of the plane, intrude into the outer world. Falling out of one system, they are not accepted by another. What happens is the confusion of

ideas. we ^{hesitate} ~~hesitate~~ between ^{two} ~~two~~ "realities", without getting sufficient information from either of them.

Thus, only in its existence as "the whole" the system is perceived as a model correlated to the outer reality due to its own independent reality, created by the artist.

